



# International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531  
(Print & Online)

<http://gssrr.org/index.php?journal=JournalOfBasicAndApplied>



## Innovation Generation in the Furniture Industry in Southwestern Nigeria

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### Abstract

The paper examines the innovations carried out in the furniture making industry in Southwestern Nigeria. This was with a view to recommending policy measures to enhance the innovative performance of the furniture makers. The research covered Lagos, Oyo, Ondo and Ekiti States, because a large numbers of the industry are located in the states. The sample population consisted of 319 furniture makers. The research instruments used were questionnaire, personal observation and focus group discussion approaches. The questionnaire was administered to furniture makers to elicit information on the nature and extent of the innovations generated by the furniture makers. Both descriptive and inferential statistics techniques were employed for data analysis. The result shows that many innovations were carried out by the furniture makers among which are Bunk beds for students with stair case, up board and down board of beds are carved, new office table with plywood without using nails, designing of new styles of doors having more panels than before. Establishment of cluster villages for furniture makers should be encouraged by Government, so also the National Directorate of Employment (NDE) should train more youth in the industry and other sectors of the economy so that artesian and technician will not go into extinction in Nigeria.

**Keywords:** Innovation; Generation; Furniture Industry; Clusters; Technology.

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## **1. Introduction**

Science and technology have been known as the leading factors influencing any economy to grow and develop industrially [1]. There is no country that can attain appropriate economic development in the absence of science and technology (S & T). This statement had been corroborated by [2] who opined that hardly can a nation be lifted out of the doldrums of economic recession in the absence of a formidable S & T policy, which itself is the bedrock of genuine R & D effort.

The formal sector of the Nigeria economy depends mostly on imported technology. It has not performed impressively in recent years. This was evident from its fluctuation between growth and decline within the past three decades [3].

In a recent investigation of “de-industrialization hypothesis” in Africa, [4] submitted that “evidence of de-industrialization was found in seven out of 16 Sub-saharan African countries from which data were available”. Although, Nigeria was among the nine countries for which the hypothesis could not be proved, the performance of the Nigerian economy especially the manufacturing sector, presents a good illustration of the poor state of industry in most African countries in the last three decades.

The research conducted recently in furniture making industry in Southwestern Nigerian shows that there are abundance of human and material resources to make the sector grow but it is confronted with technological problems. Some of these problems are: inadequate capital, absences of electricity, non-availability of advanced tools and equipment for furniture works among others. The industry has produced many innovations; however, there is not much documented information about the characteristics of these innovations. This research paper is to document information about some of innovations and their characteristics generated in furniture industry. It is also to know problems confronting the sector of the economy.

## **2.0 Literature review**

Innovation occurs when a new product is created or value is added to a product to make it more appreciable or valuable. The new theory and literature on innovation systems have established that innovative outcomes are produced by information from agents, of which the firm may perhaps be considered as one of the most significant [5, 6, 7, 8]. It was cited in [9] that Schumpeter defines innovation as any change in the production function which bring an increase in output.

[10]lists five types of innovation. They are adaptive innovation, incremental innovation, original innovation, revolutionary/ radical innovation and imitative innovation. The adaptive innovation is an activity that is directed at modifying the technical basis of production process prior to full scale use, or the changes to a product before it is introduced into the market. Adaptive efforts are necessary to change process parameters to suit the technical environment of imported systems. Incremental innovations are also referred to as autonomous technical dynamism. Advanced countries emphasize on major breakthrough but less advanced countries emphasize on minor breakthroughs. Original innovations bring about new products entirely but their technical/ scientific basis may not be new. They are radical/ revolutionary innovations because they are new in the locality.

[11,5] identify four types of innovations. These are stationary technology, incremental innovation, radical innovation and technological revolution. When these innovations are compared with those identified by [10] it can be seen that incremental innovation will fit in into imitative innovation. The technological revolutionary innovation is also similar to technological revolution, while stationary technology has no place in the types of innovations identified by [12].

### **3.0 Research methodology**

The research covered Lagos, Oyo, Ondo and Ekiti states because furniture firms are numerous in the locations selected. The population sample was 319 respondents. The research instruments used are questionnaire, personal observation, focus group discussion and secondary data collection approaches. The questionnaire was administered to furniture makers to elicit information on the bio-data of the respondents and the nature and extent of innovations generated by the master furniture makers. Interview was used to ascertain and supplement the information obtained from the questionnaire administered. Some customers of the industry were interviewed on furniture innovations they observed in the market. Both descriptive such as pie chart, frequency, percentage among others and inferential statistical techniques are employed for data analysis.

### **4.0 Result and Discussion**

Table 1 presents total of 310 (97.2%) master furniture makers who indicated that apart from repairs, they were engaged in improvement, adaptation or modification of furniture. [13]also reported that about 87% of respondents in the informal footwear sector were able to carry out incremental innovation. This is a series of small improvements to an existing product. About 94.7% of the respondents in Lagos state were engaged in various improvements, adaptation or modification of furniture products as indicated in Table 1 while 5.4% did not engage in adaptation.. Similarly, 99.2% of the respondents in Oyo state were also engaged in various adaptation or modification of furniture products while 0.8% did not involve. Furthermore, 96.7% of the respondents in Ondo state and 96.6% of the respondents in Ekiti state claimed to be engaged in adaptation or modification of furniture articles. In these two states, 3.3% and 3.4% did not engage in furniture adaptation.

Table 1: Minor change capability: Engagement in adaptation or modification of furniture

	States				Southwestern/p ercentage
	Lagos	Oyo	Ondo	Ekiti	
Engagement in adaptation or modification of furniture.	71(94.7%)	123(99.2%)	59(96.7%)	57(96.6%)	310 (97.2%)
None engagement in adaptation or modification of furniture.	4(5.3%)	1(0.8%)	2(3.3%)	2(3.4%)	9 (2.8%)
Total	75	124	61	59	319 (100%)

Source: Field survey: 2012

Table 2 presents result of number of modification carried out per month by the master furniture makers. Majority (58.0%) of the master furniture makers claimed that they carried out between 1 – 5 furniture adaptations or modifications per month, 28.6% adapted or modified between 6 – 10, 7.8% adapted between 11 – 15, 2.8% modified between 16 – 20 furniture per month, while the remaining 2.8% modified above 20 furniture products per month.

Table 2: Number of modification carried out per month

No of furniture adapted per month	Lagos	Oyo	Ondo	Ekiti	Southwestern / percentage
1 – 5	35	84	25	41	185 (58.0%)
6 – 10	22	30	27	12	91 (28.6%)
11 – 15	9	3	8	5	25 (7.8%)
16 – 20	5	2	1	1	9 (2.8%)
Above 20	4	5	-	-	9 (2.8%)
Total	75	124	61	59	319 (100%)

Source: Field Survey, 2011.

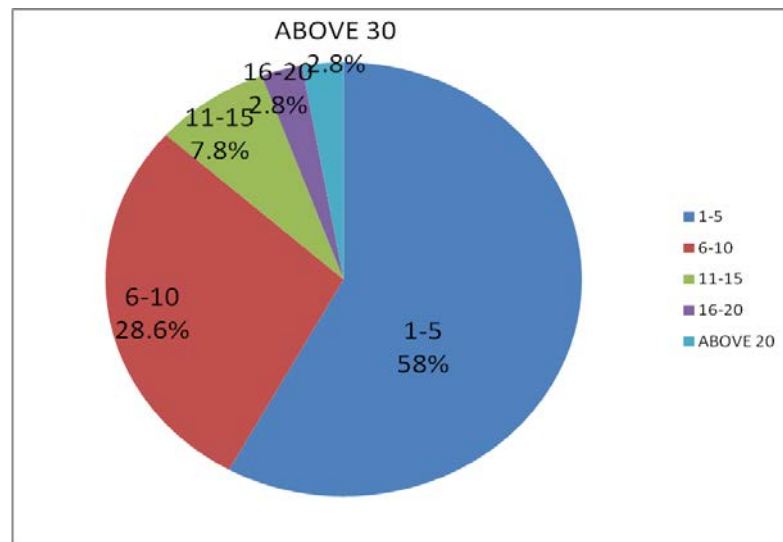


Figure 1: Number of Modifications Carried out per Month

Table 3 shows reasons why furniture makers engaged in minor modifications. There was significant difference ( $F = 10.282$ ;  $P < 0.001$ ) among the reasons for modification and adaptation of furniture products. These reasons rated on a 5 point Likert scale were creativity (3.98); intrinsic motivation (3.55); competition (3.48) and social reasons (3.43). Other reasons were (i) financial gain in terms of profit (ii) knowledge development in terms of new designs (iii) the use of modern equipment. [13]also reported that about 87% of respondents in the informal footwear sector were able to carry out incremental innovation. These are improvements to an existing product or product line that usually help, maintain or improve its competitive position over time. It is regularly used within the high technology business companies that need to continue to improve their products to include new features increasingly desired by consumers. Most of the respondents in Lagos, Oyo, Ondo and Ekiti States were engaged in various improvement, adaptation or modifications of furniture products.

Table 3: Rating of the Reasons for engaging in minor modifications by the furniture makers

Reasons	Lagos	Oyo	Ondo	Ekiti	Southwestern
Creativity	3.8	3.3	4.5	4.3	3.98
Intrinsic Motivation	3.3	2.9	3.8	4.2	3.55
Competition	3.2	2.6	3.9	4.3	3.48
Social reasons (Newly wedded family festivals)	3.4	2.6	3.9	3.8	3.43

Source: Field Survey, 2012.

**Key:** Very weak Reason (vwr =1), weak reason (wr=2), fairly strong reason (fsr=3), strong reason (sr=4) and highly strong reason (hsr=5)

Table 4 presents the sources of idea for adaptation and innovation of furniture. About 58.6% of the master furniture makers obtained the idea of adaptation and minor modification from customers and through brain storming with other master furniture makers and their apprentices. About 30.7% got their products ideas through catalogue, photograph, magazines, and television. About 10.7% of the respondents claimed that the idea for adaptation came from their creativity. From Table 4 it could be inferred that furniture makers in Southwestern Nigeria did not possess adequate education to put the industry on a higher pedestal of technological growth.

Table 5 presents the result of innovations occurring in furniture workshops in the study areas. The master furniture makers were able to carry out minor adaptation in producing new designs of furniture due to their creative and innovative efforts. In the office furniture aspect, armless chairs were redesigned to armchairs, table tops were beautified by putting leather, decorative laminated plastics or plywood. They were also involved in the construction of table styles without using nails to join the planks together. Adhesive or “wood rod” was used instead of nails. New styles of lockers, bookshelves, wall shelves, looking mirror among others were constructed. In the area of door making, different styles of doors that have more panels, artistic works, modern frames and fashionable designs were also made.

Table 4: Sources of idea for adaptation and innovation

Source	States				Southwestern/ percentage
	Lagos	Oyo	Ondo	Ekiti	
Reading catalogues	24	52	10	12	98 (30.7%)
Brain storming with customersa	36	65	45	41	187 (58.6%)
Inspiration /creativity	15	7	6	6	34 (10.7%)
Total	75	124	61	59	319 (100%)

Source: Field survey 2012

Similarly, redesigning of old settees/upholstery to new ones was carried out. These grassroots innovations occurred because of the availability of the furniture working tools which are mainly imported from advanced countries. This scenario is contrary to studies carried out by [14, 8, 15] that “the imported technologies have not led the country into technological growth”.

Table 5: Type of innovation occurring in furniture workshops in the study area

Type	Bed	Door	Table	Upholstery
Minor change	The floors of many beds are made up of wood slab instead of tie rods. Legs of beds are turned. Some beds are made in form of a circle instead of rectangular shape.	The designs of imported doors are adapted to produce local ones.	Changing of armless chair to armchair. Putting leather, Formica, plywood on top of table instead of wood alone. Imported dining tables made of glass are adapted in Nigeria using wooden materials that will look exactly like the imported one. The designs of office table and chair made	Arms of upholstery settees are of different shapes. The designs are got from catalogues, album and television or drama films. Modification of old upholstery to a new design or replacement of old cloth with leather.

			up of imported materials are adapted using local planks to produce new tables.	
Major change	Pillars are used in the four corners of beds. Bunks for students are having stair case. Up board and down board of beds are carved.	Designing of different styles of doors having more panels. The frames of doors are made wider than it used to be. Some door frames are carved.	Construction of table without using nails to join planks.	Plank in form of slab is adapted in the floor of upholstery settee instead of former spring and elastic tape. The turned legs of upholstery settee are been replaced with wheel/tyre.
	Construction of (2.2m) by (1.8m) beds. Inner floor of bed is separated from the body. High head rest and low head rest beds are constructed. Some settees are made in form of resting beds.	New doors with different sizes of carved upright and panels are sold to customers.	Complete use of plywood to construct office table with modern designs.	Different modern designs of full and half upholstery are produced for customers.

Source: field survey 2012

## 5.0 Conclusions and Policy Recommendations

### 5.1. Conclusion

The paper concluded that the nature and extent of innovations carried out in furniture industry were mainly adaptation and minor changes – which enhanced their production and performance. Imported doors and settees' designs are adapted into making local ones; complete use of plywood to construct office table with modern design. The imported dining sets made of glass are adapted in Nigeria using wood materials that look exactly like the imported one. The minor changes occurred in the area of changing old settees made of cloth to settees covered with leather. So also door uprights that are damaged are replaced with new ones. Chairs with broken legs are replaced with new legs.

Other types of innovation such as radical innovations are not carried out by furniture makers due to absence of modern equipment and lack of infrastructures that are needed for such innovations. The findings from the

respondents show that the extent of innovations in the industry is low. It is not so significant unlike what happens in advanced countries of the world like Italy, USA, UK among others.

## 5.2 Recommendations

The following recommendations are made in order to enhance technological and innovative capabilities of the furniture makers.

- (i) State and local government should encourage furniture makers in their domains to establish cluster villages where member firms could derive maximum benefits from clustering. This idea will no doubt enhance knowledge diffusion, technological capability development and innovation among the entrepreneurs.
- (ii) Both local and national furniture/carpenters' associations should also encourage their members to form clusters and partake in establishing cooperative societies. They should also patronize financial institutions for soft loans to expand their businesses.

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